Washington State On-Site Wastewater Technical Review Committee

Summary Minutes for the September 9-10, 1999 Meeting

Approved on December 3, 1999 by Vote of the Committee

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TECHNICAL DISCUSSION ATTACHMENTS[1]

MEETING ATTENDEES

Members Present
Dean Bannister
Kevin Barry
Clifford Bates
Scott Jones
Bill Peacock
Tom Rogers
Mike Vinatieri, Chair

Members Absent
Bob Monetta
Vacant Position

Guests Who Signed In
Bob Backman
Laura Benefield
Jim Bransfield, Infiltrator
Chao-Lin Hseih, NSF
Bill Montgomery, FAST Systems
Ken Moody
Mike Morris
Buster Nieshe, Infiltrator
Jim Patterson, Five Star Env
Peter Primeau
Janine Reed, Clallam Cnty Hlth Dept
Gary Tipton
Jim Sayer, NE Tri-Cty Hlth Dept
E.C. Stanton
Thomas Swett
Jim Wallace, J&D Wallace Inc.
Mike Ward, Terraqua Env Consult
Peter Wingfield, Precise Wtr & Wste

DOH Staff
Wayne Turnberg, TRC Coordinator
Mark Soltman, Facilitator
Richard Benson
Lisa Brown
Selden Hall

INTRODUCTION

The two day meeting (September 9-10, 1999) was called to order by Mike Vinatieri, Chair, at approximately 8:00 a.m. on September 9, 1999 (Day 1) and at approximately 8:15 a.m. on September 10, 1999 (Day 2) in the Tamarrack Room of Courson Hall, Central Washington University, Ellensburg, Washington. The meeting began with brief background introductions by each committee member. The two new committee members, Scott Jones, PE, representing engineers, and Bill Peacock, PE, representing public sewer utilities were welcomed to the TRC. To date, one vacancy remains, which has been historically held by a representative from the Department of Ecology. The Department of Health will continue efforts to fill this position before the next meeting in December.

On the issue of having a soil scientist sitting on the committee, Wayne Turnberg noted that the DOH was unable to identify a soil scientist willing to sit on the committee with any experience in on-site wastewater. Wayne explained that during the search, one soil scientist who had been contacted, Michelle Miller, suggested that in lieu of having a soil scientist sitting on the committee, that an ad hoc approach to soil problem-solving could be taken. This would involve taking issues raised by the TRC to the Washington Society of Professional Soil Scientists (WSPSS) during their quarterly meetings in Ellensburg, to discuss these on-site related issues. Ms. Miller offered to bring issues raised by the TRC to the WSPSS if so desired.

SUMMARY OF TECHNICAL DISCUSSIONS

Composting Toilets – Wayne Turnberg presented proposed amendments to the composting toilets recommended standards and guidance document, which is found in Water Conserving On-Site Wastewater Treatment Systems, Section A, Waterless Toilets RS&G. It is proposed that Section A of that document be teased apart to develop four independent waterless toilet subsections (composting toilets, vault toilets, incineration toilets, pit privies) for greater clarity on standards. Today's draft presented composting toilets as an independent stand-alone subsection of the waterless toilet section, with proposed changes represented by underlined text and strikeout text. The TRC presented comments to the DOH during the discussion of the proposed amendments.

Motion/Recommendation by the Committee:

- By general consensus, the TRC concurred with the DOH's proposal to amend the composting toilet section of the Water Conserving On-Site Wastewater Treatment Systems RS&G by conducting the following activities:
  - DOH will work with the compost toilet industry/users in Washington state by:
    - Providing a forum for discussion sometime during the fall
    - Providing copies of the next draft to the compost toilet industry/users, which would incorporate comments provided by the TRC from this meeting. (Should the TRC have comments to today's draft, then these should be forwarded to Wayne by October 20th.)
  - DOH will contact the microflush industry for information and to see if they can provide a presentation to the TRC during its December meeting, keeping this issue on the proprietary product side.
  - DOH will return to the TRC in December with the next draft for review and, if deemed ready by the TRC at that time, for recommendation to adopt.

Assignments –

- The DOH will proceed with amending the composting toilet section of the Water Conserving On-Site Wastewater Treatment Systems RS&G by conducting activities as described above.

At-Grade Drainfield Systems – Selden Hall provided the committee with a handout that included 1) an outline of his presentation regarding a technical overview of at-grade drainfield systems, 2) responses to the list of outstanding technical issues that the TRC reviewed during its March 4-5, 1999 meeting, and 3) a list of references that the DOH has collected to date on this subject. Following the presentation, the TRC identified the following additional technical issues for examination: 1) The need to make sure fluid gets into the native soil before reaching toe; 2) Restrictions between using these systems for septic tank effluent vs. using them for pre-treated effluent to treatment standard 2 (Note: It is Mark Soltman's opinion that the only issue between pretreated effluent vs. septic tank effluent is the matter of vertical separation); 3) Site preparation; 4) Linear loading rate vs. soil type and slope and # orifices / linear foot; 5) The use of gravelless technology and subsurface drip; 6) The time of year for installation, or the moisture content of soil for installation; and 7) Application of at-grade in cold climate conditions, and what effect pretreating the effluent (vs. septic tank effluent) will have in those settings.
Motion/Recommendation by the Committee – None.
Assignments –

- The TRC will review the issues and responses to issues provided by the DOH in the meeting handout, and provide written comments to Selden Hall by October 15, 1999.
- The DOH will continue to research issues, including the new issues raised during the meeting. Based on comments and status of research findings, the DOH will determine by late November whether it will have additional information to bring back for further discussion to the TRC for its December 2-3, 1999 meeting.
- By request, the DOH will send copies of the scientific papers to Dean Bannister, Scott Jones, and Bill Peacock.

Recirculating Gravel Filters – Lisa Brown presented the latest revisions and proposals for the recirculating gravel filter changes. Lisa noted that during the last meeting on May 20-21, 1999, the TRC decided that Lisa would get together with Dean Bannister to resolve some of the remaining technical issues. Lisa provided the TRC with a memo which identifies the remaining issues, and a copy of the latest draft guideline for discussion. Based on discussion, the following motions/recommendations and assignments were made by the Committee:
Motion/Recommendation by the Committee –

- By a vote of six in favor, one opposed, (the Chair did not vote), the TRC directed that the RS&G should establish a redundant off requirement in the recommended standard
- By general consensus of the committee, the committee directed the department to address the following issues as discussed during the meeting, and to return to the TRC with a revised document for discussion and direction during its December 2-3, 1999 meeting:
  - Clarification on the splitter basin detail on the question of the use of the T leading to final disposal (e.g., the purpose of the open-ended T facing upward, identified in the draft document on page 14);
  - Inclusion of a redundant off in the RS&G standards (by formal vote of the committee);
  - Provision of some language on the containment vessel standards. Specifically, can the RS&G address a plywood frame construction to put a PVC liner in the backfill around it that doesn't have to be designed by a licensed engineer?
- Identification of the historical need for the ball-valve requirement and based on that finding, addressing that issue in the RS&G.

Assignments –

- Lisa Brown will conduct research as discussed, revise the document based on the research findings and direction provided by the committee, and return with a new draft to the committee for its review and direction during the December 2-3, 1999 meeting of the TRC.

Stratified Sand Filters – Lisa Brown presented the most recent revisions and proposals for the stratified sand filter guideline changes. Lisa noted that during the last meeting on May 20-21, 1999, the TRC decided that Lisa would get together with Dean Bannister to resolve the last technical issues which involved the process of venting. Lisa also noted that during the last TRC meeting, there had been discussion about discontinuing the stratified sand filter (SSF) guideline for lack of use, but that this idea was rejected by some TRC members who believed that it still served a purpose and should be retained. In response, Lisa reformatted the existing SSF guideline into a new draft in the standard RS&G format for these documents. She noted that in reformatting the document, that the technical information in the guideline had not been changed, except for one technical issue raised by Dean Bannister involving proposed venting changes. His concerns with the current design were an issue of constructability. When the holes are drilled and the filter settles, placing the perforated holes at the pea gravel level can not be reasonably done, and the vents become essentially non-existent. Based on input from Dean, Lisa proposed changes that would involve maintaining a vertical vent to the bottom, and would have pea gravel layers vented horizontally with the use of 2 inch slotted pipe. Lisa acknowledged that she could find no technical information in the literature relating to this venting issue. It was suggested that Lisa contact an SSF researcher, Mark Gross, for additional input on this issue. She also noted that the current draft document had not yet been amended to include references to the proposed Effluent Quality-Based Drainfields RS&G, which would be addressed in the next draft document.
Motion/Recommendation by the Committee – None.
Assignments –

- Lisa Brown will 1) contact Mark Gross, who had conducted dissertation research on the stratified sand filter at the University of Arkansas, for his input regarding the venting proposal; and 2) amend the draft document to include references to the Effluent Quality-Based Drainfields RS&G as applicable (see summary below).

Subsurface Drip Systems for Combined Wastewater – Richard Benson presented a continuation of the discussion on developing the subsurface drip for combined wastewater systems RS&G. Richard noted that one of the most important design concepts in the guideline involves the loading rates / emitter and lateral spacing. Richard described this issue as the last outstanding technical issue to resolve, with a goal to resolve by the December 1999 TRC meeting.
Motion/Recommendation by the Committee – None.
Assignments –

- Richard Benson will continue efforts to address the technical issue loading rates / emitter and lateral spacing, and return to the TRC with additional information on that subject and a draft subsurface drip irrigation RS&G document during the TRC's upcoming meeting on December 2-3, 1999.

Joint Discussion – Note: Although identified as individual discussions in these minutes, the discussions on Aerobic Treatment Units, Effluent Quality-Based Drainfields, Disinfection Methods and Equipment, and Intermittent Sand Filter Systems were presented during the same TRC session, and are inter-related. Because the issues are inter-related, the reader should consider all four discussions for a complete understanding of the discussions and actions that took place during this TRC meeting session. These discussions are summarized as follows:

- **Aerobic Treatment Units –** Mark Soltman presented to the TRC comments received by outside reviewers to the previous ATU guideline draft (Version 15). Mark noted that the most significant comments fell into three groups: 1) Category 3 ATUs; 2) ATU/sand filter parity issues; and 3) Disinfection. With regard to the proposed ATU Category 3 systems, commenters identified the need for the guideline to specify performance standards. In developing such standards, Mark identified the following steps to be taken: 1) To identify if there is a performance number (e.g., a certain BOD5 level) of an aerobic effluent that will result in some improvement in drainfield performance; 2) If

such criteria can be identified, to develop a suitable testing protocol which would be performed by a third party testing entity; and 3) Once established, DOH would be in a position to review and list Category 3 products in the same way that Category 1 products are listed. With regard to the industry's concern about ATU/sand filter parity issues, Mark noted that the issues dealt with matters of: 1) Vertical separation; 2) Gravity vs. pressure distribution; 3) Drainfield size; and 4) The use of add-on disinfection. To address these issues, Mark determined the need to create two new documents based on much of the information found in ATU draft 15A. These documents are entitled: 1) Effluent Quality-Based Drainfields; and 2) Disinfection Methods and Equipment.

- **Effluent Quality-Based Drainfields –** Mark Soltman presented the details of the first draft Effluent Quality-Based Drainfields RS&G. From a previous ATU draft, issues relating to effluent quality-based drainfields were exported from that document to this stand-alone document, and revised as necessary, to be applied to all applicable effluent quality-based alternative systems. Mark noted that for the purposes of this document, there are five levels of pre-treatment: 1) TS1; 2) TS2; 3) NSF Class 1; 4) NSF Class 2; and 5) Residential Septic Tank Effluent. Issues relating to effluent quality and allowances for vertical separation, drainfield and reserve area sizing, and gravity vs. pressure distribution are addressed and summarized in Table 1 of the draft document.

- **Disinfection Methods and Equipment –** Mark Soltman presented the new draft Disinfection Methods and Equipment document to the committee and described the context within which this document applies. Mark noted that this is being developed as in interim document as the National Sanitation Foundation develops a national standard for disinfection equipment. Mark noted that once national standards are established, that this document will significantly change.

- **Intermittent Sand Filter Systems –** Mark Soltman presented proposed changes to the intermittent sand filter document that would involve replacing existing language that addresses effluent quality and disinfection, and replacing with references to the new effluent quality and disinfection draft guidelines which are now under development

- **Joint Discussion Summary** – Mark noted that sections applying to effluent quality-based drainfields and disinfection equipment will be deleted with references to the applicable new documents, and that this mechanism would be repeated for recirculating gravel filters and stratified sand filters, also as applicable.

  Motion/Recommendation by the Committee –
  - By general consensus, the TRC provided direction to the DOH to revise the draft ATU document, Effluent Quality-Based Drainfields document, and Disinfection Methods and Equipment document, and the Intermittent Sand Filter document as it applies to these issues, which would include changes as identified during the meeting on the following timeline:
    - Revised document drafts will be completed by October 10, 1999 so that they may be distributed and used during the upcoming Proprietary Devices Form on October 20, 1999;
    - Based on comments, the three drafts will be brought back to the TRC for review during the upcoming meeting on December 2-3, 1999.

  Assignments –
  - The DOH will proceed with revisions on the schedule identified above, and return with revised documents to the TRC during its December 2-3, 1999 meeting.

ADMINISTRATIVE/OTHER ISSUES

May 9-10, 1999 Meeting Minutes Adoption – By unanimous vote, the committee approved the May 9-10, 1999 TRC meeting minutes without changes.

Upcoming TRC Vacancies – One vacancy remains on the TRC which has traditionally be held by a representative from the Department of Ecology. Efforts will be made to have this position filled before the next TRC meeting.

Next Meeting – The next TRC meeting is scheduled for December 2-3, 1999 in the Elaine Wright Room located in the Munson Retreat Center, Central Washington University, Ellensburg, Washington.

LIST OF MEETING MATERIALS

Administrative/Other Materials
- Meeting Agenda, September 3-4, 1999
- Draft TRC Meeting Minutes – May 9-10, 1999

Composting Toilets
- Draft RS&G – Water Conserving On-site Wastewater Treatment System, Subpart A1, Composting Toilets [First Draft Revision].

At-Grade Drainfield Systems
- At-Grade Presentation and Remaining Technical Issues Document

Recirculating Gravel Filters
- Memo from Lisa Brown to the TRC, 9-9-99, Re: Revisions to Standards and Guidance – Recirculating Gravel Filters ad Stratified Sand Filters
- Washington State Department of Health. Recirculating Gravel Filter Systems – Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance. Olympia, Washington. Draft document prepared by Lisa Brown, printed on September 7, 1999.
- Orenco Systems, Inc. Guidelines for Intermittent Sand Filters

Stratified Sand Filters
- Memo from Lisa Brown to the TRC, 9-9-99, Re: Revisions to Standards and Guidance – Recirculating Gravel Filters ad Stratified Sand Filters
- Washington State Department of Health. Stratified Sand Filter Systems – Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance. Olympia, Washington. Draft document prepared by Lisa Brown, printed on September 8, 1999.
- 9/9/99 Proposed Changes to "Draft" Stratified Sand Filter standards ad Guidance - Venting

Subsurface Drip Disposal Systems Applied To Combined Wastewater
- Various supporting information assembled by Richard Benson

Aerobic Treatment Units
- Inventory of Comments/Suggestions Received
- Comments/Recommendations for the draft Recommended Standards and Guidance for ATUs

- Washington State Department of Health. Aerobic Treatment Units, Version 20 - Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance, Olympia, Washington. Draft document prepared by Mark Soltman, printed on 9/7/99

Effluent Quality-Based Drainfields

- Washington State Department of Health. Effluent Quality-Based Drainfields - Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance. Olympia, Washington. Draft document prepared by Mark Soltman, printed 9/7/99.

Disinfection Methods and Equipment

- Washington State Department of Health. Disinfection Methods and Equipment - Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance. Olympia, Washington. Draft document prepared by Mark Soltman, printed 9/7/99.

Intermittent Sand Filter Systems

- Sand Filter RS&G , Section 3.7 – Draft (for parity description)

TECHNICAL DISCUSSION ATTACHMENTS[1]

If you wish to obtain copies of the Technical Discussion Attachments, please contact Wayne Turnberg either by telephone [206-522-0132], fax [206-528-9839], or email [wayne.turnberg@doh.wa.gov].